

REMARKS

Reconsideration of this application in light of the present amendment and remarks is respectfully requested.

Claims 1-5, 7, 10, 21-23 and 26 have been rejected.

Claims 11, 12, 27 and 28 were previously withdrawn.

Claims 21-23 and 26 have been canceled, without prejudice.

Claim 1 has been amended.

Claims 1-5, 7 and 10 are pending in this application.

Claims 1-5, 7, 10, 21-23 and 26 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Klosowiak et al. (US 5,276,418) hereinafter "Klosowiak '418", in view of Stopperan (US 5,428,190) hereinafter "Stopperan", Griffin et al. (US 4,226,659) hereinafter "Griffin" and either one of the references "Chipbonding Adhesive" or "Dual Cure System Adhesives" and either one of Li et al. (US 5,998,738) hereinafter "Li" or Klosowiak et al. (US 5,434,362) hereinafter "Klosowiak '362".

Claims 21-23 and 26 have been canceled.

Independent claim 1 has been amended to incorporate the features of: screening a solder paste onto a PCB, placing components on the PCB, and using an oven reflow profile to both reflow the components onto the PCB and to final cure the liquid adhesive. Support for this can be found in the specification on page 8, lines 3-7.

Klosowiak '418 describes an assembly having a flexible substrate or circuit board (11) that is bonded to rigidizer plates (23, 24, 25) (col. 4, lines 14-21). Klosowiak '418 is silent on the type of adhesive. The reference is also silent on the assembly technique with relation to different types of adhesives such as the one described in the Applicants' application. Therefore, Klosowiak could not envision applicants' elements of: using a dual-stage cure adhesive, using a liquid adhesive, providing a first curing step before assembly, application of solder paste, and the use of solder reflow oven profile to provide the second cure of the adhesive while also reflowing the solder paste. Therefore, Klosowiak '418 is missing several elements of applicants' invention, as recited in amended claim 1.

Stopperan describes the use of a conductive adhesive screened to two circuit boards, wherein the adhesive is heated to provide an electrical connection therebetween (col. 14, lines 32-34). The assembly with the conductive adhesive is described in Stopperan as being an "uncured" assembly (col. 14, lines 52-56). The uncured assembly is then subjected to heat and pressure (col. 14, lines 52-56). Stopperan does not suggest or disclose applicants' elements of: using a dual-stage cure adhesive, using a liquid adhesive, providing a first curing step *before* assembly, application of solder paste, and the use of solder reflow oven profile to provide the second cure of the adhesive while also reflowing the solder paste. Therefore, Stopperan is missing the same elements of applicants' invention, as recited in amended claim 1.

Griffith does not make up for the deficiencies in Klosowiak '418 or Stopperan. Griffith describes a dual cure epoxy resin but does not describe a method that includes: providing a first curing step before assembly of a PCB to an aluminum rigidizer, application of solder paste, and the use of solder reflow oven profile to provide the second cure of the adhesive while also reflowing the solder paste. Moreover, Griffith provides curing of the resin *after* assembly, whereas applicants advantageously provide final curing *during* assembly, saving a process step. Therefore, Griffith is missing the same elements of applicants' invention, as recited in amended claim 1.

The Office Action makes reference to the "Chipbonding Adhesive" and "Dual Cure System Adhesive". The cited references do include dual cure adhesives, but are directed to attaching components to a circuit board. Therefore, these references could not envision applicants' use of an adhesive and a solder paste, a separate first cure step for only attaching a PCB to an aluminum rigidizer, and a joint second cure step that simultaneously cures the adhesive to secure the PCB to the rigidizer while providing solder reflow to secure components to the PCB. Therefore, these references are also missing the same elements as the previously cited references.

Li does not make up for any of the above deficiencies. Li describes a first and second adhesive film (31, 32) but does not suggest or disclose applicants' elements of: using a dual-stage cure adhesive, using a liquid adhesive, providing a first curing step before assembly, application of solder paste, and the use of solder reflow oven profile to provide the second cure of the adhesive while also reflowing the solder paste. Therefore, Li is missing the same elements of applicants' invention, as recited in amended claim 1.

Klosowiak '362 also does not make up for the above deficiencies. Klosowiak '362 mentions an adhesive layer (23) but does not suggest or disclose applicants' elements of: using a dual-stage cure adhesive, using a liquid adhesive, providing a first curing step before assembly, application of solder paste, and the use of solder reflow oven profile to provide the second cure of the adhesive while also reflowing the solder paste. Therefore, Klosowiak '362 is missing the same elements of applicants' invention, as recited in amended claim 1.

None of the cited art suggests or discloses applicants' use of solder along with an adhesive. Therefore, none of the cited art could envision applicants' novel technique for providing an adhesive cure and solder reflow at the same time.

Accordingly, applicants respectfully submit that amended independent claim 1 is deemed patentably distinct and nonobvious from the cited art inasmuch as none of the cited art envisions the particular steps in applicants' method for securing components with solder paste to a PCB which is itself secured to a rigidizer using a first cure and a second cure simultaneous with solder reflow. Therefore, amended claim 1 is now deemed allowable for the above reasons.

Claims 2-5, 7 and 10 are dependent on amended claim 1, and the above comments with respect to claim 1 are hereby incorporated by reference. Therefore, claims 2-5, 7 and 10 are deemed allowable as well for the same reasons.

Accordingly, for the reasons set forth above, the Applicants respectfully request withdrawal of the rejection based on the cited references.

Conclusion

The other references of record have been reviewed and applicant's invention is deemed patentably distinct and nonobvious over each taken alone or in combination.

For the foregoing reasons, applicants respectfully request that the above rejections be withdrawn.

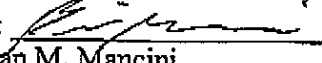
Inasmuch as this amendment distinguishes all of the applicants' claims over the prior art references, for the many reasons indicated above, passing of this case is now believed to be in order. A Notice of Allowance is earnestly solicited.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any claim, unless applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

Authorization is hereby given to charge any fees necessitated by actions taken herein to Deposit Account 50-2117.

Respectfully submitted,
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